

GRADES OF FED BEEF CARCASSES

.....
NOVEMBER 1973-
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.....

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Preface

What is the quality grade distribution of our fed beef production? How are the yield grades distributed? To provide the answers to these and other questions, the U.S. Department of Agriculture (USDA) conducted a nationwide survey of beef carcasses from November 1973 through October 1974. The survey was made possible by the cooperation of 68 meatpacking plants representing 51 firms. Carcass data were collected by supervisors and graders in the Meat Grading Branch, Livestock Division of USDA's Agricultural Marketing Service (AMS). The AMS Statistical Services Group assisted in designing and analyzing the study. Meat inspectors in USDA's Animal and Plant Health Inspection Service (APHIS) also assisted in this study. The cooperation of all who participated in, or helped in any way with, this study is greatly appreciated.

Grades reported are based on the Official U.S. Standards for Grades of Carcass Beef that have been in effect since June 1, 1965. These standards were amended to include Bullock Standards on July 1, 1973. The data were collected in such a way that it was possible to estimate the effect of grade consist changes resulting from changes in grade standards such as those that became effective February 23, 1976.

The results presented in this report provide a

measure of the consist of our fed beef production during the survey period and will serve as a benchmark for determining changes in the makeup of our future beef supply. However, the data are not necessarily indicative of the consist of our fed beef production during other periods.

During late 1973 and through most of 1974—coincident with this survey—several unusual circumstances significantly influenced beef production and had a particularly severe impact on fed beef output. Increasing beef production, generally declining fed cattle prices, and higher costs of grain resulted in large financial losses for cattle feeders and prompted a sharp cutback in both the number of cattle fed and the average length of time they were on feed. The number of steers and heifers marketed from feedlots dropped from an all-time peak of 27.7 million head in 1972 to 25.9 million in 1973 and 23.9 million in 1974. During the fourth quarter of 1973 when the survey began, fed steers and heifers accounted for nearly three-fourths of commercial cattle slaughter and 94 percent of commercial steer and heifer slaughter. However, during the fourth quarter of 1974 when the survey was completed, fed steer and heifer slaughter made up only 56 percent of commercial cattle slaughter and 77 percent of commercial steer and heifer slaughter.

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Summary

Data on USDA quality and yield grades of 18,257 fed beef carcasses were collected from November 1973 through October 1974. Each carcass was evaluated for conformation, maturity, marbling, final quality grade, carcass weight, actual and adjusted fat thickness over the ribeye, ribeye area, estimated percentage of kidney, pelvic, and heart fat, and final yield grade.

The average grade of the carcasses surveyed was low Choice and Yield Grade 3.4. Other averages included hot carcass weight, 679 pounds; adjusted fat thickness over the ribeye, 0.62 inches; ribeye area, 11.8 square inches; and estimated percentage of kidney, pelvic, and heart fat, 3 percent.

Most carcasses—70.4 percent—were typical A maturity, and 40 percent of the carcasses fell within the "small" degree of marbling.

Generally, conformation, which was eliminated as a quality grade factor when the standards were revised (effective February 23, 1976), did not change the final quality grade from that indicated by marbling and maturity. In fact, conformation was a limiting factor on the grade of only 3.2 percent of the carcasses.

The data indicate that, within a given weight range, heifer carcasses were fatter and, although they had slightly larger ribeyes, were slightly lower in yield grade than steer carcasses. Within each weight range, heifer carcasses had more marbling and slightly higher conformation grades, and were more mature than steer carcasses. Bullock carcasses were lower in quality grade and higher in yield grade than either steer or heifer carcasses, and were closer to steer carcasses in weight.

A comparison of how beef graded under the standards in effect during the study and how carcasses would have graded under the 1976 revised standards shows that the most sizable difference in grade consist occurred in the Choice and Good grades. Under the revised standards, 68 percent of the carcasses would have graded Choice compared with the 54 percent that graded Choice under the old standards. By contrast, two-fifths of the carcasses graded Good under the old standards, but only a fifth would have been in this grade under the revised standards.

Introduction

Over the years, many people have posed questions about the relative proportions of fed beef in each of the USDA quality and yield grades. USDA has not had adequate information to accurately answer such questions. One source of information has been data compiled by the Meat Grading Branch, Livestock Division, of the Agricultural Marketing Service (AMS). These data show, for beef that has been graded, the amount in each grade. However, since most beef that would fall into the lower grades is not offered for grading, the data show a larger percentage of beef in the higher grades than is the case in the total beef population. Another source of grade information has been USDA's Economic Research Service (ERS), which used to estimate the grade consist of all beef produced. The ERS estimates were based in part on information furnished by the Meat Grading Branch. Both the Meat Grading Branch and ERS reports are based on tonnage of beef in the various grades. This study is based on the number of carcasses in the various grades.

Information on the amount of beef in each grade is of interest for several reasons. Knowledge of the quality and yield grade consist and the various factors that determine these grades can pinpoint facets of beef production needing improvement and provide a data base for comparing future changes in beef production.

Accurate information on the grade consist also will be useful to persons who must make business decisions involving buying, selling, or producing beef. Knowledge of the grade consist is of interest to almost everyone involved in the beef industry.

Procedure

The purpose of this study was to survey the grade consist of the fed beef population. The data were collected under the grade standards in effect in 1973 and 1974, and most of the results reported reflect these standards. However, the last four tables showing results reflect the effect of the grade changes which became effective in February 1976.

When the survey began, fed beef accounted for about 85 percent of the beef sold through retail stores and used by hotels and restaurants. Since steers and heifers are the main source of the fed beef supply, their carcasses were the focus of this survey. However, since bullock carcasses are often marketed through the same outlets as steer and heifer beef, they were also included in the survey. Although cows do make up a significant portion of our total commercial beef production, they are really a byproduct of steer and heifer production and are used primarily for ground beef and manufactured products. Therefore, cow carcasses were excluded from the study.

Plants included in the survey were selected from 226 federally inspected plants, each of which slaughtered at least 20,000 steers and heifers in 1972. The probability of a plant occurring in the sample was proportional to its size. Therefore, the larger the number of steers and heifers a plant slaughtered, the more likely it was to be selected. States were arranged in the geographical order used by USDA's Statistical Reporting Service, running generally from northeast to southwest, and plants in each State were listed numerically by Federal meat inspection establishment number.

Plants were selected from this list, based on numbers of steers and heifers slaughtered in 1972, using a random starting point of 188,000 and a skip interval of 250,000. Thus, any plant which slaughtered more than 250,000 steers and heifers in 1972 was sure to be selected at least once and could be selected (hit) more than once. In each plant that was hit once, 20 carcasses were graded each month for 12 months. Plants which were hit more than once had 20 carcasses graded each month for each hit.

This procedure resulted in the selection of 85 plants with 99 hits. An additional eight plants were selected as alternates. Five of the original 85 plants and one of the eight alternates were closed or scheduled for closing at the time of selection. Permission to conduct the survey was received from 68 of the remaining 87 plants. Sampling the steer and heifer beef slaughtered in these 68 plants, with multiple samples of 20 in some plants, provided a total sample well over the minimum considered necessary for making a

highly accurate estimate of the fed beef grade consist. Approximate locations of the 68 plants in the survey are shown in figure 1.

In 1972, a total of 32.3 million cattle were slaughtered under Federal inspection and 26.3 million of these were steers and heifers. Ninety-four percent of the steers and heifers (24.6 million head) were slaughtered in the 226 plants with an annual slaughter of over 20,000 steers and heifers, and 12.4 million steers and heifers (47 percent) were slaughtered by the 68 plants which granted permission for the survey.

Carcasses to be evaluated were randomly selected from all of the previous day's steer and heifer slaughter.

Factors Evaluated

The sheet used to collect the grading data is shown in figure 2. Information collected on each carcass included the quality grade factors (conformation, maturity, and marbling); the final quality grade; the yield grade factors (carcass weight, actual and adjusted fat over the ribeye, ribeye area, and estimated percentage kidney, pelvic, and heart fat); and the yield grade. In addition, the class of the carcasses (steer, heifer, or bullock) and comments of the evaluators concerning dark cutters, unusual conditions, or any other factors which affected the grades of particular carcasses were recorded.

Grade Determination

Except for references to new quality grades in the last five tables of results, the grades reported were based on the Official U.S. Standards for Grades of Carcass Beef, as amended to include Bullock Standards on July 1, 1973, that have been in effect since June 1, 1965.¹ These grades were determined from the maturity, marbling, and conformation, with the marbling and maturity combined as indicated in the chart which is shown in figure 3. New quality grades reported in the last four tables were based on marbling and maturity, combined according to the chart (shown in figure 4) from the Official U.S. Standards for Grades of Carcass Beef which became effective February 23, 1976.² Yield grades were determined according to the formula given in the official standards. (See footnotes 1 or 2.)

¹U.S. Department of Agriculture Official United States Standards for Grades of Carcass Beef, as amended July 1, 1973, Agricultural Marketing Service.

²U.S. Department of Agriculture Official United States Standards for Grades of Carcass Beef, as amended April 14, 1975, Agricultural Marketing Service.

Limitations

One significant limitation must be considered in evaluating the survey results. Much of the data was not collected under normal grading circumstances. For the most part information was collected on animals slaughtered the previous work day. Under normal grading circumstances, carcasses which do not qualify for Choice or Prime when initially offered for grading the work day after slaughter, but which are near the borderline between Good and Choice or Choice and Prime, are often reoffered for grading after additional chilling, with the second side ribbed if only one side was ribbed initially. Under these conditions, some carcasses qualify for a higher grade than when first offered for grading and a higher percentage of carcasses would be graded Choice and Prime and a lower percentage, Good than indicated by this survey.

Survey Results

During the survey period, data were collected on 18,257 carcasses. Of these, 12,837 (70.3 percent) were steers; 5,291 (29.0 percent) were heifers; and 129 (0.7 percent) were bullocks. During the same period, 17.8 million steers (69.2 percent) and 7.9 million heifers (30.8 percent) were slaughtered under Federal inspection. APHIS data include bullocks with steers or with bulls and stags.

Table 1 shows the codes used in table 2 and subsequent tables. The numerical codes were used in this study as a convenience to summarize data; they are not used in actual grading. Overall means and standard deviations for quality and yield grade factors are shown in table 2. This table shows that the average quality grade for all carcasses was low Choice and their average yield grade was 3.4.

The number and percentage of carcasses in each quality and yield grade are shown in table 3. The quality grade breakdown follows.

Only three of the 18,257 carcasses in this survey graded Utility. The tabulation below shows this yield grade breakdown.

	Percent
Yield Grade 1	4.1
Yield Grade 2	25.7
Yield Grade 3	43.9
Yield Grade 4	20.5
Yield Grade 5	5.8

At the extreme, there were four Prime, yield grade 1 carcasses and nine Standard, yield grade 5 carcasses.

The percentage of carcasses in each yield grade by quality grades and the percentage of carcasses in each quality grade by yield grade are shown in tables 4 and 5, respectively. The number and percentage of carcasses in each one-third quality grade are shown in table 6. Table 7 shows the number of carcasses in each one-tenth yield grade, overall, and by class.

Table 8 shows the percentage of carcasses in each quality grade on Mondays, Wednesdays, Thursdays, and Fridays. The data in this table give an indication of the effect which the extent of chilling has on carcass grades. All carcasses graded on Mondays were chilled for at least 2 days prior to grading, and practically all carcasses graded on the other 3 days were chilled only 1 day prior to grading. Tuesdays were excluded from this analysis because there were several Monday holidays and, depending on whether or not cattle were slaughtered on these days, carcasses in some plants would have a 1-day chill, but in other plants they would have been chilled for 2 or more days. The percentage of carcasses grading Prime and Choice (66.5 percent) was significantly higher on Mondays than on the other days (56.4 to 58.4 percent). The higher percentage of carcasses grading Prime and Choice on Mondays may be an indication of

	Percent
Prime	4.5
Choice	54.1
Good	39.9
Standard	1.4

the results that might have been obtained from the entire study if it had been possible to regrade carcasses after additional chill, a common industry practice.

Table 9 shows the means for quality and yield grade factors for Mondays, Wednesdays, Thursdays, and Fridays. The Monday averages for quality grades (12.9) and marbling score (15.7) were also significantly higher than for the other days (12.6 and 15.0 respectively). There were no other statistically significant differences between days.

The number and percentage of carcasses in each 100-pound weight range, yield grade, and quality grade are shown by class in table 10. Bullock carcasses were lower in quality grade and higher in yield grade than steer or heifer carcasses, but they were close to steer carcasses in weight. The average weight of heifer carcasses (602 pounds) was less than that of steer carcasses (710 pounds), but differences in the averages for quality and yield grades for these two classes were not large.

Table 11 shows the number and percentage of steer and heifer carcasses in each quality grade by 100-pound weight groups. As expected, in the lighter weight groups, heifer carcasses graded higher than steer carcasses. Table 12 shows the number and percentage of carcasses in each yield grade by class and weight group. For both steer and heifer carcasses, as weight increases, the yield grade distribution changes from a majority in yield grades 1 and 2 to a majority in yield grades 4 and 5.

Table 13 shows the means for quality and yield grade factors for steer and heifer carcasses within 100-pound weight groups. From this table, it can be seen that, within the same weight range, heifer carcasses were fatter, had slightly larger ribeyes, and slightly lower yield grades than steer carcasses. Within each weight range, heifer carcasses had more marbling and slightly higher conformation grades than steer carcasses, and they were more mature. Through the 600-699 pound weight range, heifer carcasses had a higher average quality grade than steer carcasses; in the 700-799 pound range, the average quality grade of steers and heifers was the same; but in the 800-899 pound range, steer carcasses had the higher average quality grade. Means for quality and yield grade factors are shown by quality grade and class in table 14 and by yield grade and class in table 15. These means follow the expected trends except that Standard grade heifer carcasses were heavier than Good grade heifer carcasses. This could be due, in part at least, to the fact that the Standard grade heifer carcasses also were more mature than those in the higher grades.

The number and percentage of carcasses in

each one-third maturity group are shown in table 16. As expected, the bulk of carcasses (70.4 percent) were typical A maturity. There were slightly more A+ maturity carcasses (14.7 percent) than A- maturity carcasses (12.1 percent). B maturity accounted for only 2.8 percent of the carcasses surveyed. Table 17 contains a breakdown of the carcasses (number and percentage) by marbling score. Of interest is the fact that 40.0 percent of the carcasses surveyed were within the "small" degree of marbling.

The number and percentage of carcasses in each one-third conformation grade are shown by quality grade in table 18. In 85.8 percent of the carcasses, conformation did not change the final quality grade from that indicated by their marbling and maturity (table 19). The final grade of 672 carcasses (3.7 percent) was raised one-third grade because their conformation exceeded their quality level, with 517 of these (2.8 percent) going from Standard to Good. The grade of 1,917 carcasses (10.5 percent) was reduced because conformation was relatively inferior to quality but the grade of 1,333 of these—7.3 percent of the total—remained within the same grade as indicated by marbling and maturity and only 584—3.2 percent of the total—were reduced to a lower grade. Of the 584 carcasses which were reduced in quality grade by inferior conformation, 429 were reduced from Choice to Good, 152, from Prime to Choice, and 3, from Good to Standard. The effect of conformation on quality grade was similar for steer and heifer carcasses. The percentage of carcasses raised in grade for superior conformation (3.4 percent) was the same for both sexes. Slightly more heifer carcasses were reduced within a grade for inferior conformation (8.4 percent) than steer carcasses (6.7 percent), but there was little difference in the percentage of carcasses reduced to a lower grade (3.1 percent for heifer carcasses and 3.3 percent for steer carcasses). In comparison with steers and heifers, a larger percentage of bullock carcasses were raised in grade for superior conformation and a smaller percentage were reduced in grade for inferior conformation. This is due, at least in part, to the lower average quality grade of bullock carcasses.

The incidence and effect of the dark cutting condition on quality grade are shown in table 20. Only 248 carcasses (1.4 percent of the total) exhibited a dark cutting condition sufficient to affect their final quality grade, and 154 of these dropped to a lower grade because of the dark cutting condition. Most of these (106) dropped from Choice to Good. The other 94 carcasses dropped only within a grade.

Monthly variations in percentage of carcasses in each quality grade and yield grade are shown

in tables 21 and 22, respectively. There was a general decrease in fatness (improvement in yield grade) and a corresponding drop in quality grade during the survey period. This trend appears to be directly related to the general shift in feeding practices during the survey period as a result of extremely unfavorable economic conditions.

Revised quality grade standards for beef carcasses became effective February 23, 1976. There has been considerable interest in the effect of this change on the quality grade consist of the fed beef supply. Tables 23 through 27 show the effect that this change would have had on both the quality grades and the yield grades. The quality grade consist under the old standards was as follows:

	Percent
Prime	4.5
Choice	54.1
Good	39.9
Standard	1.4
Utility	less than 0.05

The quality grade consist under the revised standards would have been as shown below.

	Percent
Prime	6.6
Choice	68.0
Good	21.3
Standard	3.9
Utility	0.2

These changes in consist under the revised standards occurred because of the way producers fed and managed the fed beef supply during the period of this study. Undoubtedly, cattle feeders will make some adjustments in feeding practices following the change—depending on economic conditions—and these data should be used with this in mind. The number and percentage of carcasses by yield grades and the revised quality grades are shown in tables 26 and 27. Generally, the change allowed leaner, higher cutability carcasses to qualify for Prime and Choice.

Table 1—Abbreviations and numerical codes for quality grade characteristics

Characteristics	Abbreviations	Numerical Code	Characteristics	Abbreviations	Numerical Code
Marbling			Maturity (skeletal, lean, and final):		
Abundant	Ab+, Ab, Ab-	30-28	A	A-, A, A+	15-13
Moderately abundant	MA+, MA, MA-	27-25	B	B-, B, B+	12-9
Slightly abundant	SA+, SA, SA-	24-22	Conformation grade, quality grade:		
Moderate	Md+, Md, Md-	21-19	Prime	P+, P, P-	18-16
Modest	Mt+, Mt, Mt-	18-16	Choice	C+, C, C-	15-13
Small	Sm+, Sm, Sm-	15-13	Good	G+, G, G-	12-10
Slight	Sl+, Sl, Sl-	12-10	Standard	S+, S, S-	9-7
Traces	Tr+, Tr, Tr-	9-7	Utility	U+, U, U-	6-4
Practically devoid	PD+, PD, PD-	6-4			
Devoid	DV	3-1			

¹ Means for numerical codes in subsequent tables should be rounded to nearest whole number for determination of correct one-third grade, etc.

² Maximum maturity group for Prime and Choice = 10

Maximum maturity group for Good and Standard = 9

³ The same codes are used for both quality grades and conformation even though they are independent of each other.

Table 2—Means and standard deviations for quality and yield grade factors

Factors	Mean	Standard Deviation	Factors	Mean	Standard Deviation
Hot carcass weight (pounds)	678.7	107.4	Yield grade	3.4	0.9
Fat thickness over ribeye, actual (inches)	0.58	0.26	Conformation grade ¹	14.5	1.7
Fat thickness over ribeye, adjusted (inches)	0.62	0.26	Marbling ¹	15.1	4.0
Ribeye area (square inches)	11.8	1.4	Maturity	13.9	0.7
Estimated percentage kidney, pelvic and heart fat	3.0	0.8	Quality grade	12.6	1.6

¹ See table 1 for explanation of codes.

Table 3—Breakdown of carcasses by quality and yield grades

Yield grade	Quality grade					Total
	Prime	Choice	Good	Standard	Utility	
	Number					
1	4	186	471	81	2	744
2	90	2,010	2,496	103	1	4,700
3	320	4,655	2,991	54	0	8,020
4	298	2,354	1,073	17	0	3,742
5	115	680	247	9	0	1,051
Total	827	9,885	7,278	264	3	18,257

Percent in each yield and quality grade

1	—	1.0	2.6	0.4	—	Total
2	0.5	11.0	13.7	0.6	—	4.1
3	1.8	25.5	16.4	0.3	0	25.7
4	1.6	12.9	5.9	0.1	0	43.9
5	0.6	3.7	1.3	—	0	20.5
						5.8
Total	4.5	54.1	39.9	1.4	—	100.0

— = Less than 0.05 percent

Table 4. Percentage of carcasses by quality grade within each yield grade

Yield grade	Quality grade					Total
	Prime	Choice	Good	Standard	Utility	
1	0.5	25.0	63.3	10.9	0.3	100.0
2	1.9	42.8	53.1	2.2	—	100.0
3	4.0	58.0	37.3	0.7	0	100.0
4	8.0	62.9	28.7	0.4	0	100.0
5	10.9	64.7	23.5	0.9	0	100.0

— = Less than 0.05 percent

Table 5. Percentage of carcasses by yield grade within each quality grade

Quality grade	Yield grade					Total
	1	2	3	4	5	
Prime	0.5	10.9	38.7	36.0	13.9	100.0
Choice	1.9	20.3	47.1	23.8	6.9	100.0
Good	6.5	34.3	41.1	14.7	3.4	100.0
Standard	30.7	39.0	20.5	6.4	3.4	100.0
Utility	66.7	33.3	0	0	0	100.0

Table 6—Carcasses by thirds of quality grade

Quality Grade ¹	Number	Percent	Quality Grade	Number	Percent
P+	89	0.5	G	3,124	17.1
P	208	1.2	G-	1,467	8.1
P-	530	2.9	S+	168	0.9
C+	955	5.2	S	73	0.4
C	2,688	14.7	S-	23	0.1
C-	6,242	34.2	U+	3	—
G+	2,687	14.7	Total	18,257	100.0

¹ See table 1 for explanation of codes.

— = Less than 0.05 percent.

Table 7—Carcasses by tenths of yield grades, overall and by class

Yield grade	Overall	Class			Yield grade	Overall	Class		
		Steers	Heifers	Bullocks			Steers	Heifers	Bullocks
Less than 1.0	53	26	13	14	3.5	832	601	231	0
1.0	9	4	4	1	3.6	837	564	273	0
1.1	28	17	6	5	3.7	786	568	216	2
1.2	21	9	10	2	3.8	676	494	181	1
1.3	40	24	12	4	3.9	675	493	182	0
1.4	57	34	19	4	4.0	599	432	167	0
1.5	64	43	14	7	4.1	520	378	142	0
1.6	95	60	27	8	4.2	448	341	106	1
1.7	127	81	33	13	4.3	395	284	110	1
1.8	162	100	57	5	4.4	352	269	83	0
1.9	198	131	62	5	4.5	314	237	77	0
2.0	269	180	80	9	4.6	250	183	67	0
2.1	265	194	68	3	4.7	235	197	38	0
2.2	337	243	88	6	4.8	202	169	33	0
2.3	364	246	113	5	4.9	200	154	46	0
2.4	451	317	130	4	5.0	183	146	37	0
2.5	540	383	151	6	5.1	108	84	24	0
2.6	587	388	194	5	5.2	115	94	21	0
2.7	659	440	216	3	5.3	81	67	14	0
2.8	722	463	257	2	5.4	81	68	13	0
2.9	772	500	268	4	5.5	76	65	11	0
3.0	805	523	280	2	5.6	52	46	6	0
3.1	805	527	274	4	5.7	36	28	8	0
3.2	837	589	245	0	5.8	43	35	8	0
3.3	837	565	272	0	More than 5.9	34	31	3	0
3.4	877	598	279	0	Total	18,257	12,837	5,291	129

Table 8—Carcasses in each quality grade on 4 weekdays

Day	Quality grade			
	Prime	Choice	Good	Standard
	Percent			
Monday ¹	5.5	61.0	32.6	0.9
Wednesday	3.8	53.9	40.5	1.8
Thursday	5.0	53.4	40.1	1.5
Friday	4.3	52.1	42.3	1.3
Average of Wednesday, Thursday, and Friday	4.4	53.1	41.0	1.5

¹ Monday's grading was significantly different from each of the other days ($P \leq 0.05$).

Table 9—Means for quality and yield grade factors of carcasses on 4 weekdays

Quality and yield grade factors	Day of week			
	Monday	Wednesday	Thursday	Friday
Conformation grade ¹	14.4	14.5	14.5	14.5
Marbling ¹	² 15.7	15.0	15.0	15.0
Maturity ¹	13.9	13.9	13.9	13.9
Quality grade ¹	² 12.9	12.6	12.6	12.6
Hot carcass weight (pounds)	683.1	676.3	676.9	675.3
Fat thickness over ribeye, actual (inches)	0.58	0.58	0.59	0.58
Fat thickness over ribeye, adjusted (inches)	0.61	0.61	0.62	0.61
Ribeye area (square inches)	11.7	11.8	11.8	11.8
Estimated percent kidney, pelvic, and heart fat	3.0	3.0	3.0	3.0
Yield grade	3.4	3.3	3.3	3.3

¹ See table 1 for explanation of codes.

² Significantly different ($P \leq 0.05$) from other days.

Table 10—Carcasses in each class by weight group, yield grade, and quality grade

	Steers	Heifers	Bullocks	Total	Steers	Heifers	Bullocks	All classes
Weight groups, pounds	Number				Percent			
Under 400	4	14	0	18	—	0.3	0	0.1
400-499	174	571	7	752	1.4	10.8	5.4	4.1
500-599	1,415	2,009	19	3,443	11.0	38.0	14.7	18.9
600-699	4,343	2,067	44	6,454	33.8	39.1	34.1	35.3
700-799	4,607	554	36	5,197	36.0	10.5	27.9	28.5
800-899	1,846	73	21	1,940	14.4	1.4	16.3	10.6
900-999	390	1	2	393	3.0	—	1.6	2.2
Over 1000	58	2	0	60	0.5	—	0	0.3
Yield grade								
1	456	222	66	744	3.6	4.2	51.2	4.1
2	3,188	1,464	48	4,700	24.8	27.7	37.2	25.7
3	5,536	2,471	13	8,020	43.1	46.7	10.1	43.9
4	2,792	948	2	3,742	21.7	17.9	1.6	20.5
	865	186	0	1,051	6.8	3.6	0	5.8
Quality grade								
Prime	603	224	0	827	4.7	4.2	0	4.5
Choice	6,929	2,950	6	9,885	54.0	55.8	4.7	54.1
Good	5,153	2,036	89	7,278	40.2	38.5	69.0	39.9
Standard	149	81	34	264	1.1	1.5	26.4	1.4
Utility	3	0	0	3	—	0	0	—
Total	12,837	5,291	129	18,257	100.0	100.0	100.0	100.0

— = Less than 0.05 percent.

Table 11—Carcasses in each quality grade by class and weight group

Weight group (pounds)	Quality grade									
	Prime	Choice	Good	Standard	Total	Prime	Choice	Good	Standard	Total
Steers:	Number					Percent				
400-499	1	44	108	19	¹ 174	0.6	25.3	62.1	10.9	¹ 100
500-599	28	608	736	43	1415	2.0	43.0	52.0	3.0	100
600-699	163	2279	1852	49	4343	3.8	52.5	42.6	1.1	100
700-799	243	2623	1716	24	² 4607	5.3	56.9	37.3	0.5	² 100
800-899	127	1104	605	10	1846	6.9	59.8	32.8	0.5	100
900-999	30	241	118	1	390	7.7	61.8	30.2	0.3	100
1000-1099	9	26	17	1	53	17.0	49.0	32.1	1.9	100
Total	601	6925	5152	147	³ 12828	Overall 4.7	54.0	40.2	1.1	³ 100
Heifers:										
400-499	8	236	316	11	571	1.4	41.3	55.4	1.9	100
500-599	69	1099	816	25	2009	3.4	54.7	40.6	1.3	100
600-699	112	1252	679	24	2067	5.4	60.6	32.8	1.2	100
700-799	31	316	193	14	554	5.6	57.1	34.8	2.5	100
800-899	4	41	25	3	73	5.5	56.2	34.2	4.1	100
Total	224	2944	2029	77	5274	Overall 4.2	55.8	38.5	1.5	100

¹ 2 Utility grade steers included in total. ² 1 Utility grade steer included in total. ³ 3 Utility grade steers included in total.

Table 12—Carcasses in each yield grade by class and weight group

Weight group (pounds)	Yield grade					Total	Yield grade					Total
	1	2	3	4	5		1	2	3	4	5	
All classes: ¹	Number						Percent					
Under 400	6	10	1	1	0	18	33.3	55.5	5.6	5.6	0.0	100.0
400-499	95	372	252	33	0	752	12.6	49.5	33.5	4.4	0.0	100.0
500-599	214	1,304	1,549	341	35	3,443	6.2	37.9	45.0	9.9	1.0	100.0
600-699	252	1,740	3,206	1,090	166	6,454	3.9	27.0	49.7	16.9	2.5	100.0
700-799	126	955	2,249	1,481	386	5,197	2.4	18.4	43.3	28.5	7.4	100.0
800-899	47	276	649	651	317	1,940	2.4	14.2	33.5	33.6	16.3	100.0
900-999	4	39	98	128	124	393	1.0	9.9	24.9	32.6	31.6	100.0
1000 or more	0	4	16	17	23	60	0.0	6.7	26.7	28.3	38.3	100.0
Total	744	4,700	8,020	3,742	1,051	18,257	Overall 4.1	25.7	43.9	20.5	5.8	100.0
Steers:												
400-499	40	101	31	2	0	174	23.0	58.0	17.8	1.2	0.0	100.0
500-599	115	641	559	97	3	1,415	8.1	45.3	39.5	6.9	0.2	100.0
600-699	162	1,295	2,176	628	82	4,343	3.7	29.8	50.1	14.5	1.9	100.0
700-799	98	854	2,025	1,302	328	4,607	2.1	18.5	44.0	28.3	7.1	100.0
800-899	35	253	631	621	306	1,846	1.9	13.7	34.2	33.6	16.6	100.0
900-999	3	39	98	126	124	390	0.8	10.0	25.1	32.2	31.8	100.0
1000-1099	0	4	15	13	21	53	0.0	7.6	28.3	24.5	39.6	100.0
Total	453	3,187	5,535	2,789	864	12,828	Overall 3.5	24.9	43.2	21.7	6.7	100.0
Heifers:												
400-499	49	270	221	31	0	571	8.6	47.3	38.7	5.4	0.0	100.0
500-599	88	655	990	244	32	2,009	4.4	32.6	49.3	12.1	1.6	100.0
600-699	66	429	1,026	462	84	2,067	3.2	20.8	49.6	22.3	4.1	100.0
700-799	12	89	217	178	58	554	2.2	16.0	39.2	32.1	10.5	100.0
800-899	4	12	16	30	11	73	5.5	16.4	21.9	41.1	15.1	100.0
Total	219	1,455	2,470	945	185	5,274	Overall 4.2	27.6	46.8	17.9	3.5	100.0

¹ Steers, heifers, and bullocks.

Table 13—Means of quality and yield grade characteristics of carcasses by weight group and class

Weight group (pounds)	Hot carcass weight		Fat thickness over ribeye (inches)				Ribeye area		Percentage of KPH Fat ¹	
	(Pounds)		Actual		Adjusted		(Square inches)		Steers	Heifers
	Steers	Heifers	Steers	Heifers	Steers	Heifers	Steers	Heifers		
400-499	469	463	0.32	0.44	0.34	0.47	10.0	10.0	2.5	3.0
500-599	561	554	.44	.54	.46	.58	10.8	10.9	2.8	3.1
600-699	654	644	.54	.63	.56	.67	11.6	11.7	2.9	3.1
700-799	744	734	.63	.72	.66	.77	12.2	12.6	3.0	3.1
800-899	838	834	.71	.74	.74	.80	13.0	13.7	3.0	3.2
900-999	935		.79		.82		13.5		3.1	
1000-1099	1036		.80		.83		14.0		3.2	
All weights	710	602	0.59	0.59	0.62	0.63	12.0	11.3	2.9	3.1

Weight Group	Yield grade		Conformation grade ²		Maturity ²		Marbling ²		Quality grade ²	
	Steers	Heifers	Steers	Heifers	Steers	Heifers	Steers	Heifers	Steers	Heifers
400-499	2.4	2.8	12.8	13.3	14.4	14.3	11.8	13.5	11.2	12.1
500-599	2.9	3.1	13.7	14.0	14.2	13.9	13.6	14.9	12.1	12.5
600-699	3.2	3.4	14.3	14.6	14.1	13.6	14.7	16.0	12.5	12.9
700-799	3.6	3.7	14.8	15.0	13.9	13.3	15.3	16.1	12.8	12.8
800-899	3.9	3.9	15.2	15.6	13.8	12.9	16.0	16.8	13.0	12.8
900-999	4.4		15.1		13.4		16.7		13.1	
1000-1099	4.6		14.7		13.0		18.1		13.2	
All weights	3.5	3.3	14.5	14.3	14.0	13.7	15.0	15.3	12.6	12.6

¹ Estimated percentage of kidney, pelvic, and heart fat.² See table 1 for explanation of codes.

Table 14—Means for quality and yield grade factors of carcasses by quality grade and class

Variable	Quality			
	Prime	Choice	Good	Standard
All classes:				
Conformation Grade ¹	16.1	14.8	13.9	12.7
Marbling ¹	26.0	16.5	12.1	8.2
Maturity ¹	14.0	14.0	13.9	13.3
Quality Grade ¹	16.5	13.5	11.2	8.5
Hot Carcass Weight (pounds)	715.5	687.1	665.3	619.4
Fat Thickness over Ribeye - Actual (inches)	0.76	0.63	0.50	0.34
Fat Thickness over Ribeye - Adjusted (inches)	0.79	0.66	0.53	0.35
Ribeye Area (square inches)	12.1	11.8	11.7	11.4
Estimated Percentage of Kidney, Pelvic, and Heart Fat	3.3	3.1	2.8	2.3
Yield Grade	3.9	3.5	3.1	2.5
Steers:				
Conformation Grade ¹	16.2	14.9	13.9	12.0
Marbling ¹	25.9	16.4	12.0	7.8
Maturity ¹	14.0	14.0	13.9	13.7
Quality Grade ¹	16.5	13.5	11.2	8.6
Hot Carcass Weight (pounds)	748.1	720.3	694.8	625.4
Fat Thickness over Ribeye - Actual (inches)	0.77	0.64	0.50	0.29
Fat Thickness over Ribeye - Adjusted (inches)	0.79	0.66	0.53	0.30
Ribeye Area (square inches)	12.3	12.0	11.9	11.1
Estimated Percentage of Kidney, Pelvic, and Heart Fat	3.3	3.0	2.8	2.3
Yield Grade	3.9	3.6	3.1	2.4

(Continued)

Table 14 (Continued)—Means for quality and yield grade factors of carcasses by quality grade and class

Variable	Quality			
	Prime	Choice	Good	Standard
Heifers:				
Conformation Grade ¹	16.0	14.5	13.8	13.1
Marbling ¹	26.2	16.7	12.3	9.5
Maturity ¹	13.9	13.8	13.7	12.2
Quality Grade ¹	16.5	13.5	11.2	8.5
Hot Carcass Weight (pounds)	627.7	609.0	588.5	604.7
Fat Thickness over Ribeye - Actual (inches)	0.75	0.62	0.52	0.48
Fat Thickness over Ribeye - Adjusted (inches)	0.79	0.66	0.57	0.50
Ribeye Area (square inches)	11.6	11.4	11.2	11.1
Estimated Percentage of Kidney, Pelvic, and Heart Fat	3.5	3.1	2.9	2.5
Yield Grade	3.7	3.3	3.1	2.9

¹ See table 1 for explanation of codes.

Table 15—Means for quality and yield grade factors by yield grade

Variable	Yield grade				
	1	2	3	4	5
All classes:					
Conformation Grade ¹	13.8	13.9	14.4	15.1	15.6
Marbling ¹	11.9	14.1	15.3	16.2	17.0
Maturity ¹	14.0	14.0	13.9	13.8	13.6
Quality Grade ¹	11.2	12.2	12.7	13.1	13.4
Hot Carcass Weight (pounds)	623.1	639.1	674.4	727.2	790.9
Fat Thickness over Ribeye - Actual (inches)	0.24	0.38	0.60	0.82	1.12
Fat Thickness over Ribeye - Adjusted (inches)	0.22	0.40	0.62	0.86	1.17
Ribeye Area (square inches)	13.2	12.1	11.7	11.5	11.3
Estimated Percentage of Kidney, Pelvic, and Heart Fat	2.2	2.7	3.0	3.3	3.5
Yield Grade	1.5	2.5	3.4	4.3	5.5
Steers:					
Conformation Grade ¹	13.5	13.8	14.6	15.2	15.7
Marbling ¹	11.9	14.0	15.1	16.1	17.0
Maturity ¹	14.1	14.0	14.0	13.9	13.7
Quality Grade ¹	11.2	12.1	12.7	13.1	13.4
Hot Carcass Weight (pounds)	641.7	669.6	705.6	754.5	813.7
Fat Thickness over Ribeye - Actual (inches)	0.22	0.37	0.58	0.81	1.11
Fat Thickness over Ribeye - Adjusted (inches)	0.21	0.38	0.61	0.85	1.16
Ribeye Area (square inches)	13.2	12.3	11.9	11.7	11.4
Estimated Percentage of Kidney, Pelvic, and Heart Fat	2.2	2.7	3.0	3.2	3.5
Yield Grade	1.6	2.5	3.4	4.3	5.5
Heifers:					
Conformation Grade ¹	14.1	14.0	14.3	14.8	15.0
Marbling ¹	12.8	14.4	15.6	16.7	17.2
Maturity ¹	13.9	13.9	13.7	13.6	13.3
Quality Grade ¹	11.6	12.3	12.8	13.1	13.2
Hot Carcass Weight (pounds)	572.0	572.2	603.3	644.1	683.2
Fat Thickness over Ribeye - Actual (inches)	0.27	0.41	0.60	0.83	1.15
Fat Thickness over Ribeye - Adjusted (inches)	0.26	0.44	0.65	0.89	1.21
Ribeye Area (square inches)	12.9	11.6	11.2	10.9	10.6
Estimated Percentage of Kidney, Pelvic, and Heart Fat	2.3	2.8	3.1	3.4	3.6
Yield Grade	1.6	2.5	3.4	4.3	5.3

¹ See table 1 for explanation of codes.

Table 16—Number and percentage of carcasses within maturity groups, by thirds of maturity group

Maturity ¹	Number	Percent	Maturity	Number	Percent
A-	2,206	12.1	B	112	0.6
A	12,846	70.4	B+ ²	44	0.2
A+	2,691	14.7	B+ ³	40	0.2
B-	318	1.8	Total	18,257	100.0

¹ See table 1 for explanation of codes.² Maximum maturity group for Prime and Choice.³ Maximum maturity group for Good and Standard.

Table 17—Number and percentage of carcasses by marbling scores

Marbling Score by one-thirds ¹			Average Score ²			Marbling Score by one-thirds ¹			Average Score ¹		
Number	Percent		Number	Percent		Number	Percent		Number	Percent	
Ab+	74	0.4				Sm	2,759	15.1	Sm	7,295	40.0
Ab	114	0.6	Ab	226	1.4	Sm-	2,264	12.4			
Ab-	38	0.2				Sl+	1,672	9.2			
MA+	93	0.5				Sl	1,393	7.6	Sl	3,794	20.8
MA	215	1.2	MA	388	2.1	Sl-	729	4.0			
MA-	80	0.4				Tr+	320	1.8			
SA+	174	1.0				TR	218	1.2	Tr	613	3.4
SA	275	1.5	SA	614	3.4	Tr-	75	0.4			
SA-	168	0.9				PD+	13	0.1			
Md+	480	2.6				PD	45	0.2	PD	60	0.3
Md	621	3.4	Md	1,645	9.0	PD-	2	—			
Md-	541	3.0				Dv	4	—	Dv	4	—
Mt+	946	5.2				Total	18,257	99.9 ²		18,257	100.2 ²
Mt	1,375	7.5	Mt	3,618	19.8						
Mt-	1,297	7.1									
Sm+	2,272	12.4									

¹ See table 1 for explanation of codes.² Totals more or less than 100% due to rounding.

— = Less than 0.05 percent.

Table 18—Number and percentage of carcasses by thirds of conformation grade, within each quality grade

Conformation grade ¹	Quality grade						Conformation grade ¹	Quality grade					
	Prime	Choice	Good	Standard	Utility	Total		Prime	Choice	Good	Standard	Utility	Overall
			Number							Percent			
P+	76	233	94	5	0	408	P+	9.2	2.4	1.3	1.9	0	2.2
P	262	990	400	11	0	1,663	P	31.7	10.0	5.5	4.2	0	9.1
P-	256	1,594	652	16	0	2,518	P-	31.0	16.1	9.0	6.1	0	13.8
C+	162	2,787	1,571	33	0	4,553	C+	19.5	28.2	21.6	12.5	0	25.0
C	62	2,621	1,880	43	0	4,606	C	7.5	26.5	25.8	16.3	0	25.2
C-	8	1,302	1,135	30	0	2,475	C-	1.0	13.2	15.6	11.3	0	13.6
G+	1	300	897	39	0	1,237	G+	0.1	3.0	12.3	14.8	0	6.8
G	0	48	437	26	0	511	G	0	0.5	6.0	9.8	0	2.8
G-	0	7	169	28	1	205	G-	0	0.1	2.3	10.6	33.3	1.1
S+	0	2	33	25	0	60	S+	0	—	0.5	9.5	0	0.3
S	0	0	8	7	0	15	S	0	0	0.1	2.6	0	0.1
S-	0	1	2	1	0	4	S-	0	—	—	0.4	0	—
U+	0	0	0	0	2	2	U+	0	0	0	0	66.7	—

¹ See table 1 for explanation of codes.

— = Less than 0.05 percent.

Table 19—Effect of conformation on quality grade

Final quality grade	Raised one-third of a quality grade ¹	No change ²	Lowered within grade ³	Reduced from next higher grade ⁴	Total
Number					
Prime	0	464	363	0	827
Choice	0	8,932	801	152	9,885
Good	517	6,168	164	429	7,278
Standard	154	102	5	3	264
Utility	1	2	0	0	3
Total	672	15,668	1,333	584	18,257
Percent	3.7	85.8	7.3	3.2	100.0

¹ Final quality grade raised 1/3 for superior conformation, i.e., from Standard to Good, from Utility to Standard, within Standard, or within Utility.

² Conformation did not change final quality grade.

³ Final quality grade lowered for inferior conformation; stayed in same grade.

⁴ Reduced in grade for inferior conformation; was in next higher grade on quality.

Table 20—Incidence and effect of "dark cutting" condition on quality grades

Quality grade	Normal carcasses	"Dark cutting" carcasses	
		Reduced within grade ¹	Reduced from next higher grade ²
Number			
Prime	825	2	0
Choice	9,844	28	13
Good	7,115	57	106
Standard	223	7	34
Utility	2	0	1
Total	18,009	94	154
Percent	98.6	0.5	0.9

¹ "Dark cutting" condition not sufficient to change carcass grades; e.g., from Prime to Choice. However, the grade was reduced within a grade; e.g., from average Choice to low Choice.

² "Dark cutting" condition sufficient to change the carcass grade; e.g., from Choice to Good.

Table 21—Carcasses within each quality grade, by month

Quality Grade	November 1973 - October 1974											
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.
Percent												
Prime	4.8	4.4	5.9	3.9	5.3	4.2	5.6	4.3	3.4	4.5	3.4	4.5
Choice	57.1	58.8	59.8	53.3	54.9	53.5	53.5	52.0	52.1	51.1	52.5	50.6
Good	37.2	35.5	33.5	42.0	38.8	40.6	39.0	42.6	42.6	42.4	41.9	42.6
Standard	0.9	1.2	0.8	0.8	0.9	1.6	1.8	1.1	1.9	1.7	2.1	2.3
Utility	0	0.1	0	0	0	0	0	0	0	0.1	0.1	0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of carcasses	1,540	1,540	1,539	1,520	1,540	1,521	1,520	1,519	1,520	1,500	1,498	1,500

Table 22—Carcasses within each yield grade, by month

Yield Grade	November 1973 - October 1974											
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.
Percent												
1	3.7	3.3	3.2	3.4	3.1	3.5	5.5	5.1	5.6	4.5	3.3	4.6
2	21.7	21.7	23.2	26.7	25.4	26.4	24.3	24.7	28.0	31.1	28.1	28.0
3	44.3	41.8	41.3	43.2	46.8	43.7	44.7	45.4	44.3	43.7	45.5	42.7
4	22.1	25.7	24.1	21.1	19.3	20.4	21.0	19.0	17.2	16.3	19.2	20.2
5	8.2	7.5	8.2	5.6	5.4	6.0	4.5	5.8	4.9	4.4	4.0	4.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of carcasses	1,540	1,540	1,539	1,520	1,540	1,521	1,520	1,519	1,520	1,500	1,498	1,500

Table 23. Breakdown of carcasses by revised and old quality grades

Revised quality grades	Total revised	Distribution of carcasses within old quality grades				
		Prime	Choice	Good	Standard	Utility
Number						
Prime	1,204	827	377	0	0	0
Choice	12,419	0	9,508	2,911	0	0
Good	3,880	0	0	3,851	29	0
Standard	703	0	0	489	213	1
Utility	1 51	0	0	1 27	1 22	2
Total (old)	18,257	827	9,885	7,278	264	3
Percent						
Prime	100.0	68.7	31.3	0	0	0
Choice	100.0	0	76.6	23.4	0	0
Good	100.0	0	0	99.3	0.7	0
Standard	100.0	0	0	69.6	30.3	0.1
Utility	100.0	0	1 0	1 53.0	1 43.1	3.9
Total (old)	100.0	4.5	54.1	39.9	1.4	0.5

¹ Mostly carcasses too mature to qualify for Good or Standard under the revised standards. Some of these may actually grade Commercial.

Table 24. Breakdown of carcasses by old and revised quality grades

Old quality grades	Total (old)	Distribution of carcasses within revised quality grades				
		Prime	Choice	Good	Standard	Utility
Percent						
Prime	100.0	100.0	0	0	0	0
Choice	100.0	3.8	96.2	0	0	0
Good	100.0	0	40.0	52.9	6.7	1 0.4
Standard	100.0	0	0	11.0	80.7	1 8.3
Utility	100.0	0	0	0	33.3	66.7
Total (new)	100.0	6.6	68.0	21.3	3.9	1 0.2

¹ Mostly carcasses too mature to qualify for Good or Standard under the revised standards. Some may actually grade Commercial.

Table 25—Distribution of carcasses by yield grade and new quality grade

Yield grade	New quality grade					Total—yield grade
	Prime	Choice	Good	Standard	Utility ¹	
	Number					
1	7	278	263	190	6	744
2	155	2,833	1,400	303	9	4,700
3	505	5,767	1,569	162	21	8,020
4	385	2,776	538	31	12	3,742
5	152	769	110	17	3	1,051
Total— quality grade	1,204	12,419	3,880	703	51	18,257

Percentage in each yield and new quality grade

1	—	1.5	1.4	1.0	—	4.1
2	0.9	15.5	7.7	1.7	—	25.7
3	2.8	31.6	8.6	0.9	0.1	43.9
4	2.1	15.2	3.0	0.2	0.1	20.5
5	0.8	4.2	0.6	0.1	—	5.8

— = Less than 0.05 percent

¹ Includes carcasses too mature for Good and Standard.

Table 26. Percentage of carcasses by new quality grade within each yield grade

Yield Grade	New quality grade					Total
	Prime	Choice	Good	Standard	Utility ¹	
1	0.9	37.4	35.4	25.5	0.8	100.0
2	3.3	60.3	29.8	6.4	0.2	100.0
3	6.3	71.9	19.5	2.0	0.3	100.0
4	10.3	74.2	14.4	0.8	0.3	100.0
5	14.4	73.2	10.5	1.6	0.3	100.0

¹ Includes carcasses too mature for Good and Standard.

Table 27. Percentage of carcasses by yield grade within each new quality grade

New quality grade	Yield grade					Total
	1	2	3	4	5	
Prime	0.6	12.9	41.9	32.0	12.6	100.0
Choice	2.2	22.8	46.4	22.4	6.2	100.0
Good	6.8	36.1	40.4	13.9	2.8	100.0
Standard	27.0	43.1	23.1	4.4	2.4	100.0
Utility ¹	11.8	17.6	41.2	23.5	5.9	100.0

¹ Includes carcasses too mature for Good and Standard.

Figure 1. Approximate location of plants in survey



Figure 2. Sheet used to collect beef carcass quality and yield grade data

BEEF CARCASS QUALITY AND YIELD GRADE CONSIST STUDY

Plant Name _____ Est. No. _____ Date _____
 City _____ Kill Size¹ _____ Main Station _____

No.	Class ²	Conformation grade ³	Maturity			Degree of marbling ³	Quality grade	Warm carcass weight	Fat over ribeye ⁴		Ribeye area ⁵	%RPH fat	Yield grade	Comments Dark cutter grade discount
			Skeletal ³	Lean ³	Final ³				Act.	Adj.				
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														

1. Number of steers, heifers, and bullocks in previous workday's kill

2. S = steer H = heifer B = bullock

3. By thirds of maturity group, conformation grade, and degree of marbling

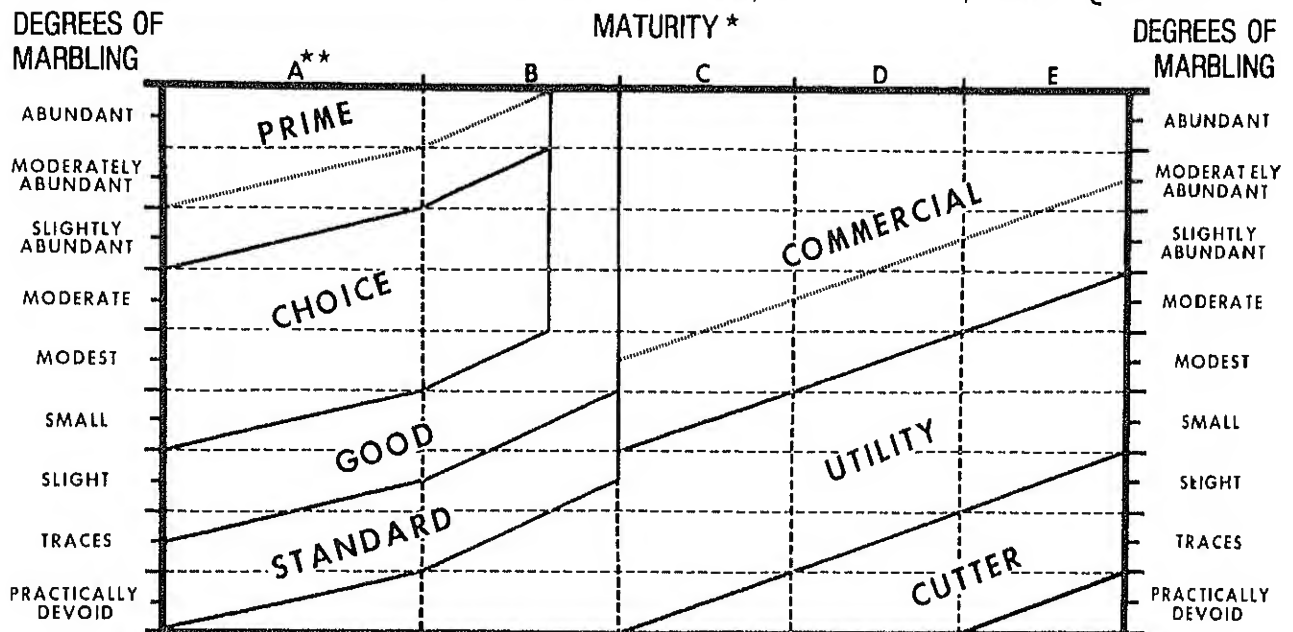
4. By tenths of preliminary yield grade--not in inches

5. By tenths of square inches--measured by grid

Evaluated by _____

Figure 3. Illustration of marbling and maturity relationships from the official grade standards in effect 1965-1975

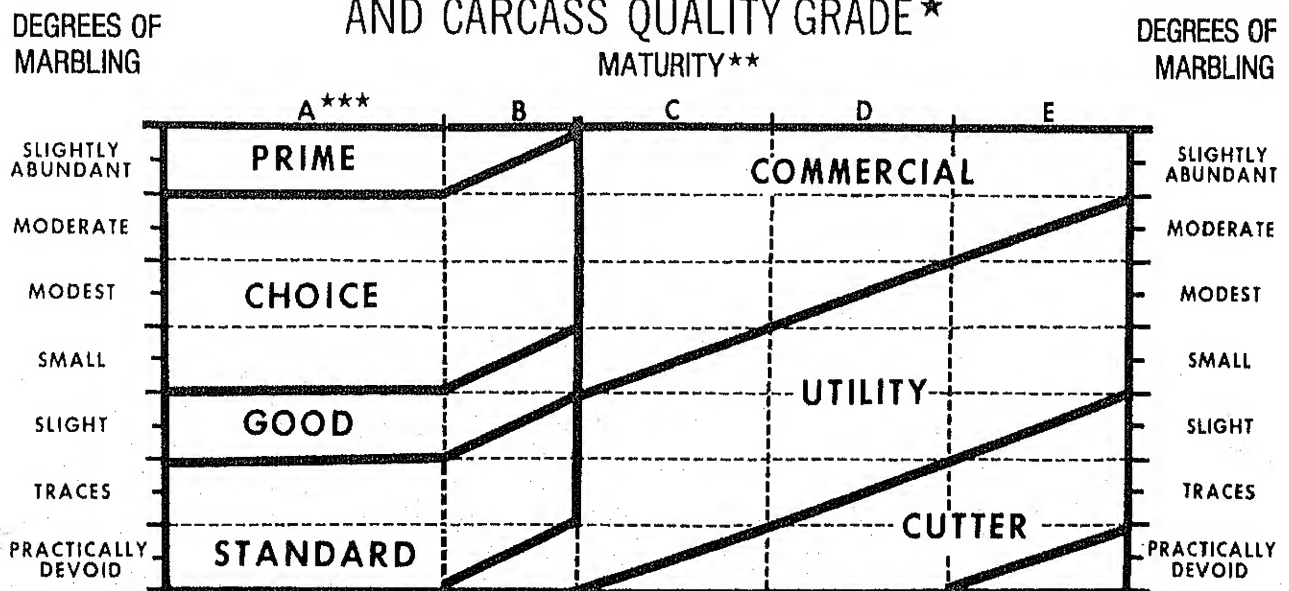
RELATIONSHIP BETWEEN MARBLING, MATURITY, AND QUALITY



- * Maturity increases from left to right (A through E)
- ** The A maturity portion of the Figure is the only portion applicable to bullock carcasses.
- Represents midpoint of Prime and Commercial grades.

Figure 4. Illustration of marbling and maturity relationships from the official grade standards revised in 1976

RELATIONSHIP BETWEEN MARBLING, MATURITY, AND CARCASS QUALITY GRADE *



- * Assumes that firmness of lean is comparably developed with the degree of marbling and that the carcass is not a "dark cutter."
- ** Maturity increases from left to right (A through E).
- *** The A maturity portion of the Figure is the only portion applicable to bullock carcasses.